

ELECTRONIC SUPPLEMENTARY INFORMATION (ESI)

**A sensitive recognition of cyanide through supramolecularly  
complexed new calix[4]arenes**

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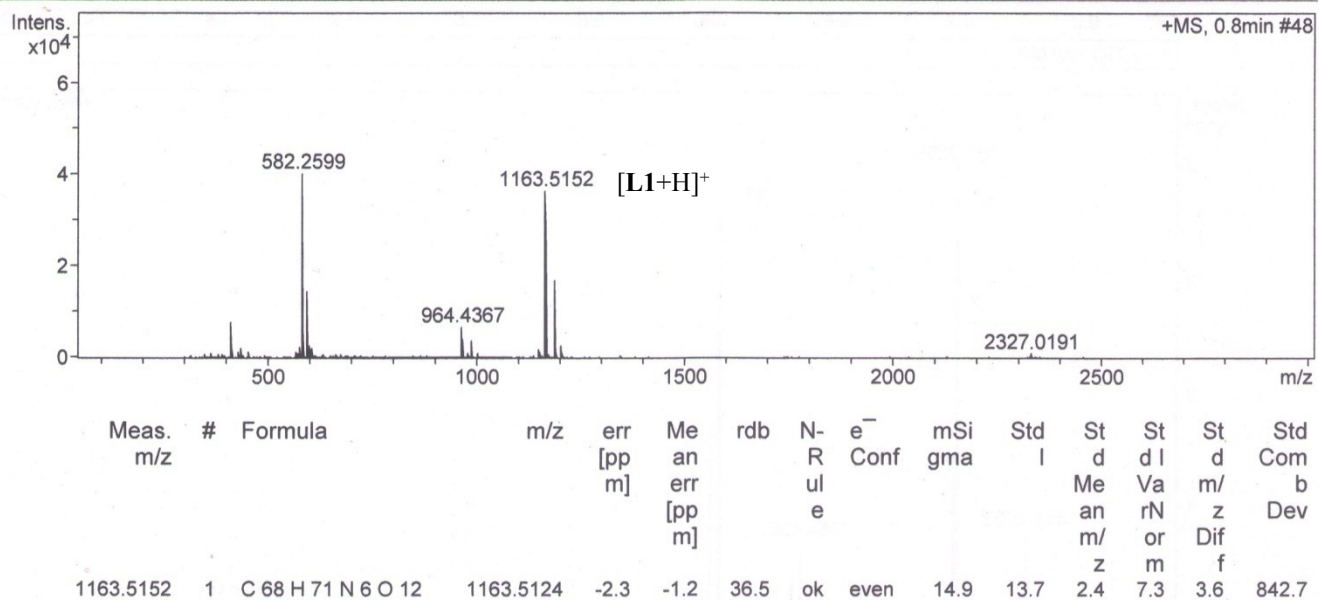


Figure S1: Mass spectrum of L1

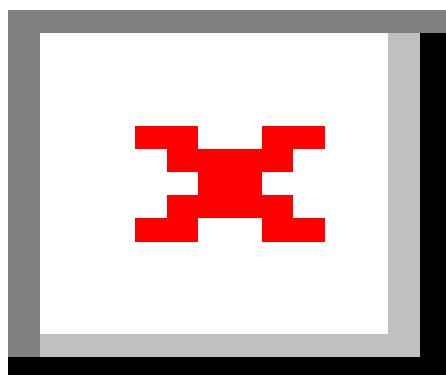


Figure S2: <sup>1</sup>H NMR spectrum of L1

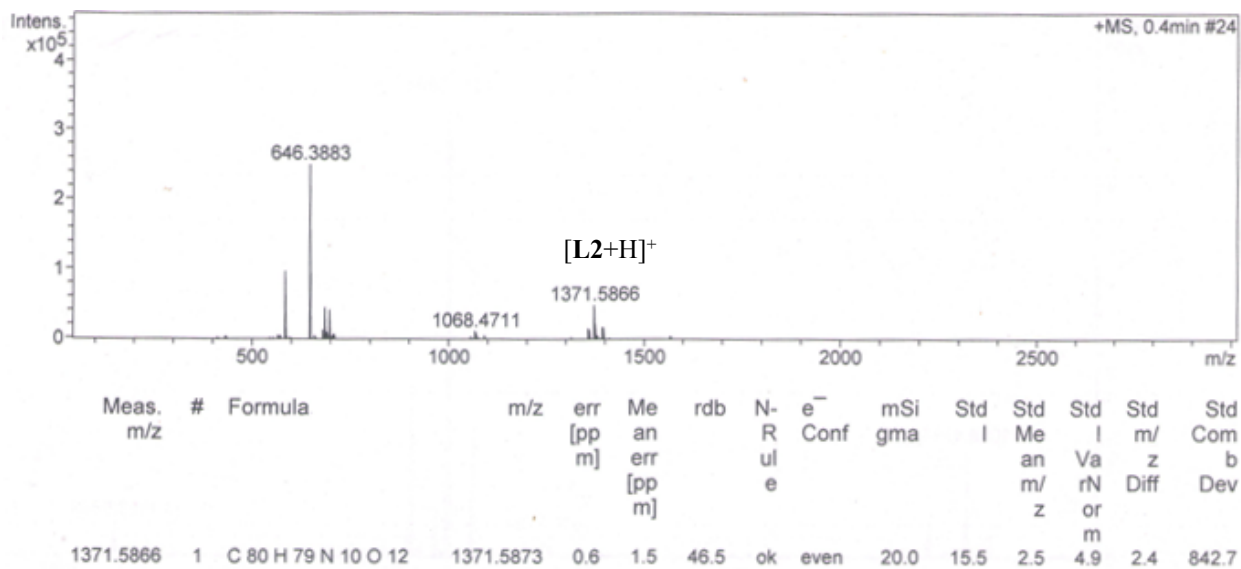


Figure S3: Mass spectrum of L2

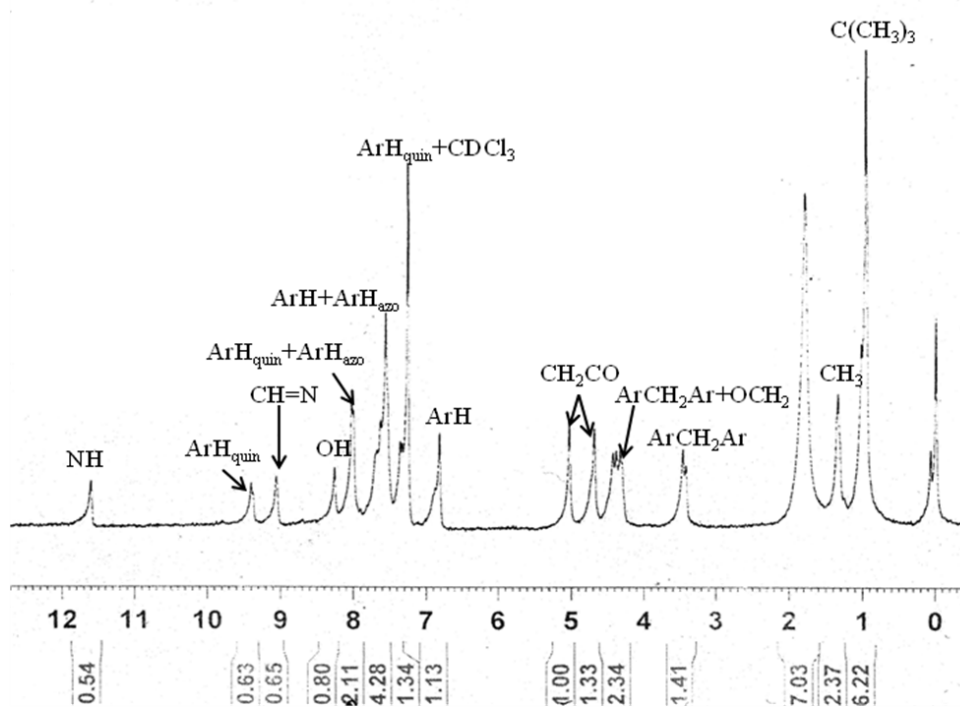


Figure S4: <sup>1</sup>H NMR spectrum of L2

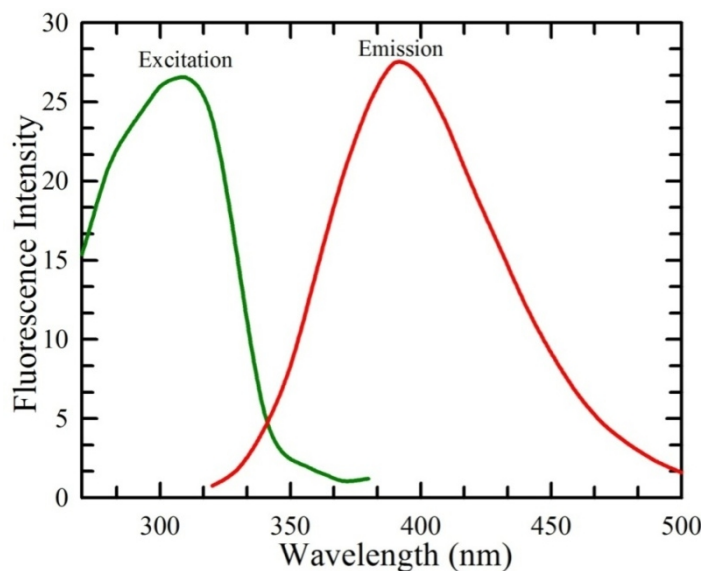


Figure S5: Excitation and emission spectra of **L1** in  $\text{CH}_3\text{CN}$  ( $\lambda_{\text{ex}} = 315 \text{ nm}$ ,  $\lambda_{\text{em}} = 390 \text{ nm}$ )

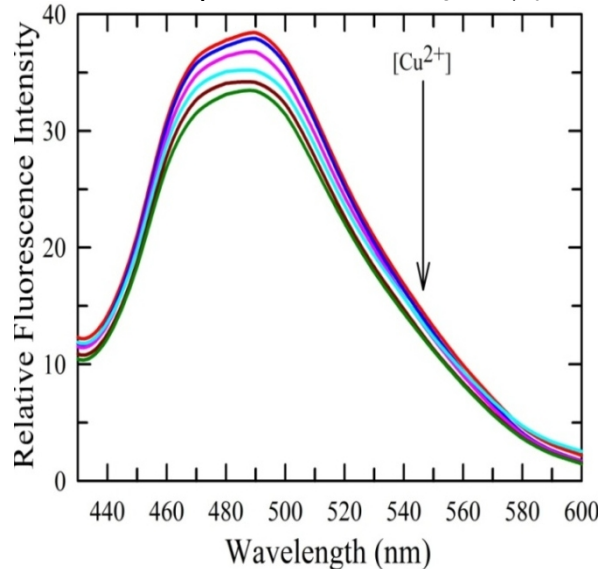


Figure S6: Quenching of fluorescence intensity of **L2** in presence of  $\text{Cu}^{2+}$  (2 equiv.) in  $\text{CH}_3\text{CN}:\text{H}_2\text{O}$  (7:3, v/v) [**L2** =  $20 \mu\text{M}$ ,  $\lambda_{\text{excitation}} = 370 \text{ nm}$ ]

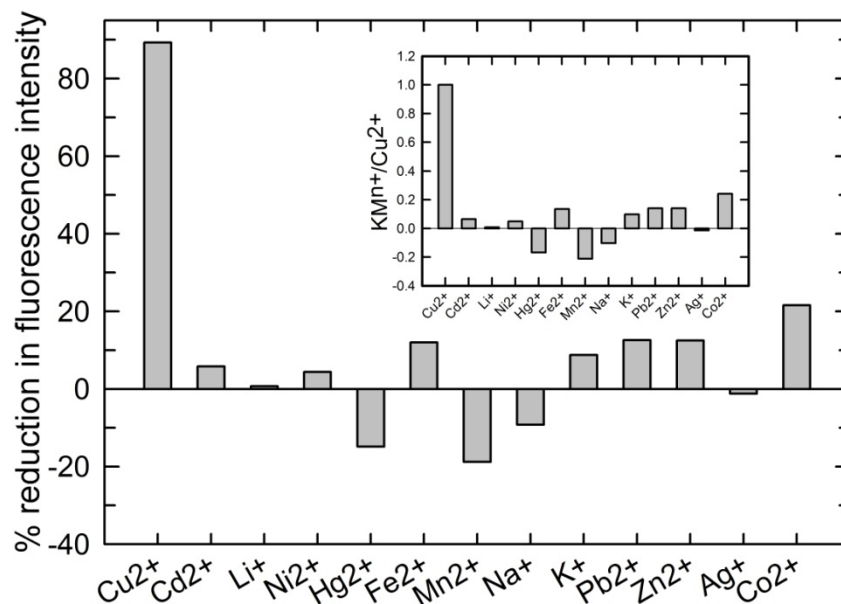


Figure S7: Percentage decrease in the fluorescence intensity of the receptor (**L1**)(20  $\mu$ M) upon addition of various metal ions in  $CH_3CN:H_2O$  (7:3, v/v) ( $\lambda_{excitation}=315$  nm); inset shows Selectivity coefficients,  $K_{M^{n+}/Cu^{2+}} = \Delta F_{M^{n+}} / \Delta F_{Cu^{2+}}$

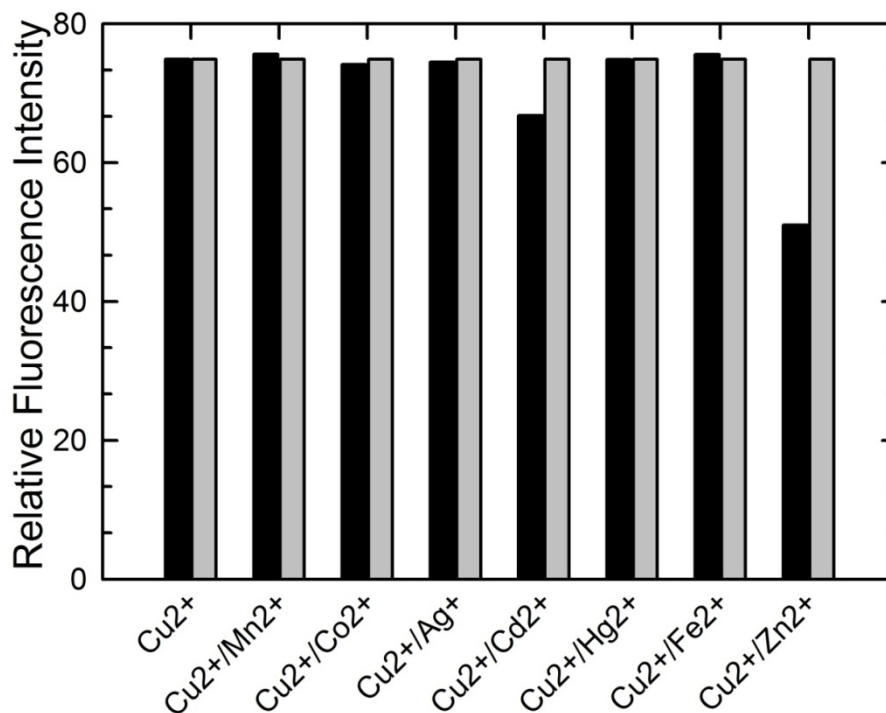


Figure S8: Selectivity of **L1** for  $Cu^{2+}$  over all other metal ions. Grey bar denotes decrease in the intensity by 1mM  $Cu^{2+}$  ion. Black bar denotes change in the fluorescence intensity by  $M^{n+}/Cu^{2+}$  (1mM) coexisting system

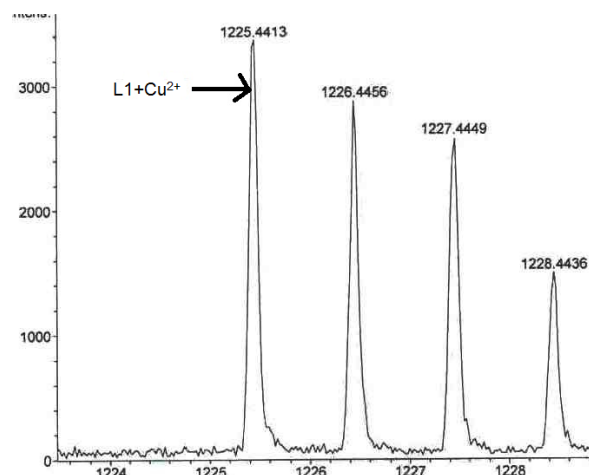


Figure S9: Expanded mass spectrum of **L1**.Cu<sup>2+</sup> complex showing the isotopic pattern

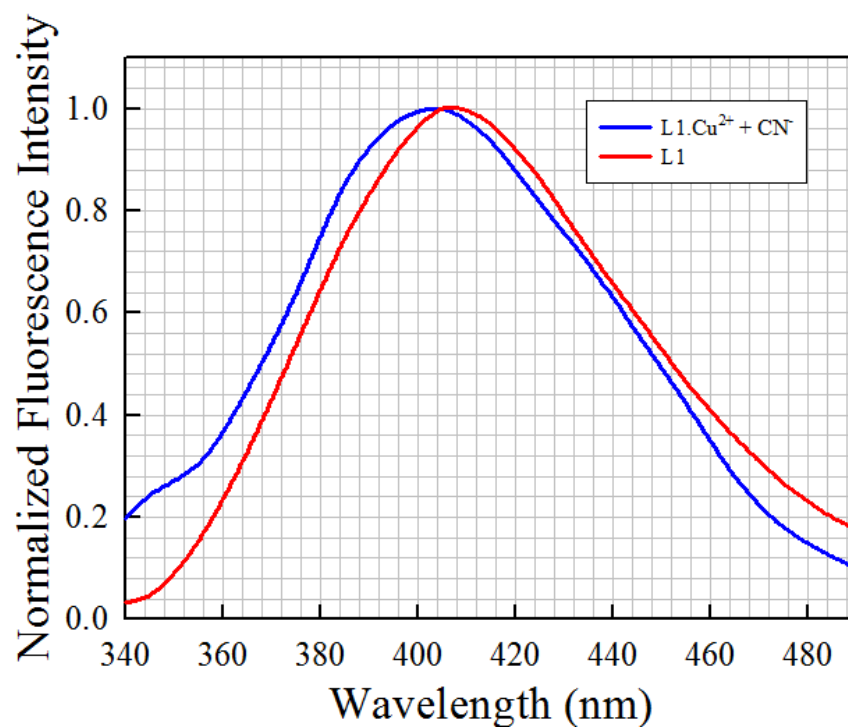


Figure S10: Normalized fluorescence intensity of **L1** alone and **L1**.Cu<sup>2+</sup>+CN<sup>-</sup> vs. wavelength

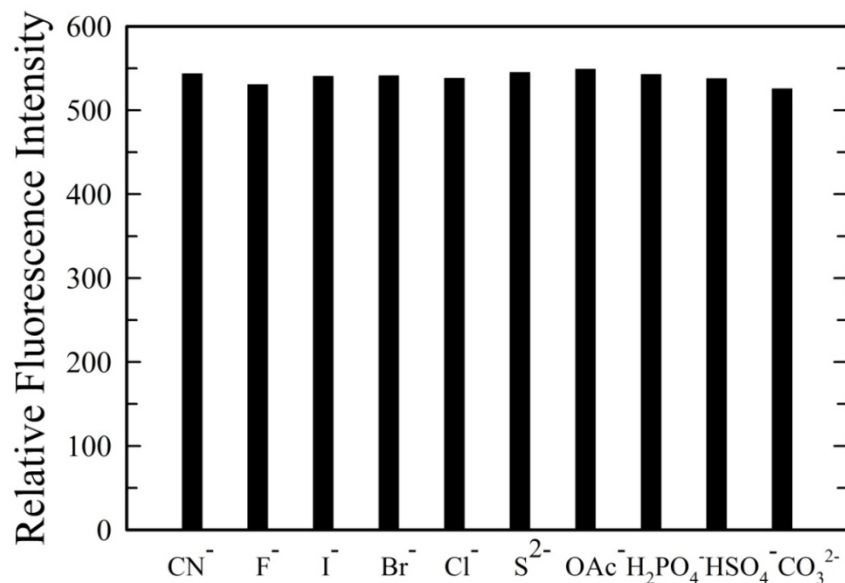


Figure S11: Selectivity of **L1.Cu<sup>2+</sup>** for **CN<sup>-</sup>** over all other anions (10 equiv.)

The effect of pH on the fluorescence spectrum of **L1.Cu<sup>2+</sup>** in the presence and absence of **CN<sup>-</sup>** was studied by measuring the fluorescence intensity at different pH values. It was observed that the interaction of **L1** with copper was most effective between pH 6-8. Consequently interaction of the metallo supramolecular complex with cyanide was examined in this pH range. Lesser reactivity of the **L1** at lower or higher pH could be attributed to protonation of the quinoline nitrogen and lesser availability of copper ions for interaction with **L1** respectively.

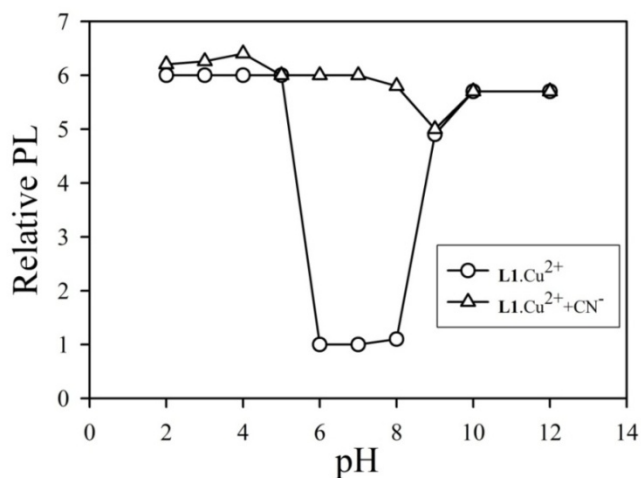


Figure S12: Effect of pH on the emission spectrum of **L1.Cu<sup>2+</sup>** in presence and absence of **CN<sup>-</sup>**